

REMARKS

Response to §103 Rejections of Claims 15-20

In the September 16, 2005 Office Action, the Examiner rejected claims 1-4 of the present application under 35 U.S.C. §102(e), as alleged anticipated by U.S. Patent No. 6,437,381 issued to Gruening et al. (hereinafter "Gruening"). Specifically, the Examiner asserted that the gate oxide layer 160 disclosed by Gruening in Figure 15 constitutes a "trench top oxide (TTO) layer" recited by claims 1-4 of the present invention.

Applicants respectfully disagree.

Specifically, Applicants have hereby amended claim 1, from which claims 2-4 depend, to recite a trench top oxide (TTO) layer that is "located inside the deep trench without extending upwardly along vertical walls of the deep trench." Support for such claim amendments can be found in Figures 2C-2H of the instant specification, which show a TTO layer 28 that is located inside the deep trench 16 and does not extend upwardly along the vertical walls of the deep trench. Such a TTO layer 28 is formed deposition of a TTO HDP oxide layer followed by a TTO sidewall etch to remove the excess TTO HDP oxide from the vertical walls of the deep trench 14 (see instant specification, paragraphs [0037]-[0038]).

In contrast, the gate oxide layer 160 disclosed by Gruening is not completely located inside the trench 200, and it extends upwardly along the vertical walls of the trench 200 even to outside of the trench 200 (see Gruening, Figure 15).

It is therefore clear that the gate oxide layer 160 disclosed by Gruening does not constitute a TTO layer that is "located inside the deep trench without extending upwardly along vertical walls of the deep trench" within the meaning of the amended claims 1-4 of the instant application.

On the other hand, the TTO layer 14 disclosed by Gruening in Figure 15 does not have "an underlying nitride layer," as positively recited by claims 1-4 of the present application.

In summary, Gruening fails to provide any derivative basis for a TTO layer that is "located inside the deep trench without extending upwardly along vertical walls of the deep trench" and has "an underlying nitride layer," as recited by the amended claims 1-4 of the present application.

Based on the foregoing, Applicants respectfully request the Examiner to reconsider, and upon reconsideration to withdraw, the rejections of claims 1-4.

CONCLUSION

Based on the foregoing, claims 1-4 as amended herein are in condition for allowance. Issue of a Notice of Allowance for the application is therefore requested.

If any issues remain outstanding, incident to the formal allowance of the application, the Examiner is requested to contact the undersigned attorney at (516) 742-4343 to discuss same, in order that this application may be allowed and passed to issue at an early date.

Respectfully submitted,



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Enclosures